THE DER WEEKLY

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Industry News

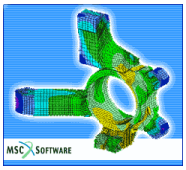
NYPA Purchases 8 Fuel Cells

UTC Fuel Cells, previously International Fuel Cells, announced that the New York Power Authority (NYPA) has purchased eight of its PC25 fuel cells for use at four wastewater treatment plants in New York City. The 200-kW units will be powered by waste gas produced in the water treatment process at plants located in Brooklyn, Staten Island, the Bronx, and Queens. The eight new units will bring New York City's fuel cell total to 17.
UTC Fuel Cells Press Release, December 19

FERC Approves Midwest ISO for RTO

The Federal Energy Regulatory Commission (FERC) has approved the Midwest Independent System Operator Inc. (Midwest ISO) as the nation's first regional transmission organization (RTO). The Midwest ISO started managing some of the operations for the electricity grid that encompasses all of the Midwest and Plains states, Texas, Arkansas, and part of the Southeast on December 15. Twenty-five companies have joined the RTO so far, accounting for approximately 73,000 miles of transmission lines and more than 300,000 square miles. FERC may require the Alliance RTO to combine its resources with the Midwest ISO to form a single transmission manager.
Reuters, December 19

MSC.Software Reduces Beacon's Design Time



MSC.Nastran

MSC.Software Corporation, a provider of simulation software, services and systems, announced that its software has helped Beacon Power, a manufacturer of energy storage systems, reduce its design time. Engineers at Beacon have used the software programs, MSC.Nastran and MSC.Patran, to analyze dynamic characteristics of the system and design prototypes for physical testing, which led to lower design times by a factor of 5 and reductions in material costs by 50 percent.
MSC.Software Corporation Press Release, December 18; Photos: www.mscsoftware.com

MSC.Patran

PowerWorks™ Ready for Commercial Orders

Ingersoll-Rand(IR) announced that its Energy Systems business unit has recently started taking commercial orders for its PowerWorks™ microturbine. The PowerWorks™ units are 70-kW systems that have cogeneration capabilities. The microturbine's engine is designed to operate for 8,000 consecutive hours without maintenance, has a target 80,000-hour engine life under typical around-the-clock operating conditions, and produces under 9ppm of NO_X. IR is also developing microturbine systems that range in sizes up to 250-kW.

Ingersoll-Rand Press Release, December 11

Construction Begins at CHP Facility

Construction started on the largest biomass combined heat and power facility in the United States on December 17. The Saint Paul Cogeneration LLC (St. Paul, Minn.), a joint venture company formed by Trigen Energy Corporation (White Plains, N.Y.), Cinergy Solutions Inc (Cincinnati), and Market Street Energy (St. Paul, Minn.), an affiliate of District Energy St. Paul Inc., has begun construction on the largest wood-fired (Biomass) combined heat and power plant (CHP) in the United States. The privately financed $55 million facility will burn some 280,000 tons of waste wood annually to produce 25 mega-watts (MW) of electricity and 300,000 lbs/hr of steam for heating and cooling purposes for downtown St. Paul buildings. President George W. Bush recently cited the combined heat and power plant as a national model for innovative energy production during his May 17 visit to St. Paul where he also announced the Administration's National Energy Policy.
Source: www.industrialinfo.com, December 17

Energy Efficient Server Farms

Renewable Energy Policy Project (REPP) program manager Fred Beck recently authored a report on designing energy efficient data centers. Data centers, or server farms, are generic terms to describe a number of different type facilities that house digital equipment for website hosting, supporting e-commerce, and providing other essential digital services. During the rapid expansion of the dot-com economy, getting the data centers on line as soon as possible was paramount. Energy efficiency methods were eschewed given the lack of standardized guidelines and lack of financial incentives. The revenue from operating these hubs were estimated as high as $1M per minute—there was not much incentive for energy efficiency.

According to the report, which can be downloaded at www.crest.org, data center operators place a high premium on keeping on the lights. By some estimates a power interruption of less than a second can cost a company millions of dollars. A

(Continued on page 2)

*GE announced on December 17 that it acquired two operations and business assets from Honeywell.**

June 2001 EPRI report estimated that power outages and power quality issues cost the U.S. digital economy $13.5B a year. Distributed generation, demand management techniques, and energy efficiency can provide high reliability power with decreased costs. Processor power chips are being manufactured to draw less power and chiller and air conditioning system efficiency improvements are being made, and distributed generation units are being used today in the digital economy. SolarHost, an Internet hosting company in Northern Virginia, is partially powered by photovoltaics.

DOE News

UMCP Welcomes Capstone Microturbine

A Capstone microturbine was delivered to the University of Maryland, College Park (UMCP) campus on December 19. The 60-kW unit, previously used at the Oak Ridge National Laboratory, replaces a 75-kW Honeywell unit at the University's integrated energy systems test facility. The Capstone unit's exhaust will be used to run an absorption chiller and the chiller will provide inlet air cooling for the microturbine.

Capstone's 60 kW unit at UMCP

Announcement: Mid-Atlantic DER Workshop

The Philadelphia Regional Office (PRO), the National Energy Technology Laboratory, and the U.S. Environmental Protection Agency (EPA) Region 3 are hosting a Mid-Atlantic Distributed Energy Resources Workshop from February 21-22, 2002, in Philadelphia, Pennsylvania. The purpose of the workshop is to gather stakeholder recommendations on the implementation needs for DER, and how the Department of Energy and the EPA can collaborate with industry and other public- and private-sector organizations to meet DER needs. The workshop sessions will focus on the manner in which environmental rules, regulations, and policies are addressed, and market penetration and development areas regarding permitting, siting, construction, connecting, and funding of DER projects. For more information, visit the PRO web site at www.eren.doe.gov/pro/cal.html. To register for the conference, visit www.energetics.com/DERPhilly.html.

What's on the Web

The California Stationary Fuel Cell Collaborative has established a web site at www.stationaryfuelcells.org. The Collaborative will use the site as a tool to keep stakeholders up to date on its activities. The site is still in the development stage. (Information regarding the Request for Bids in support of fuel cell technology is posted at www.capowerauthority.ca.gov/equestforbids/

By the Numbers

Transmission Bottlenecks

$1 billion	cost to consumers from power grid bottlenecks during the past two summers
$12.6 billion	estimated cost to ease the bottleneck choke points
$724.7 million	cost added to electricity in summer 2000 due to bottleneck in transmission line that stretches from Upstate New York to New York City
$97.6 million	cost added to electricity in summer 2000 due to bottleneck in transmission line that stretches from Central to Southern California

Source: Associated Press

Power Crunch: The DER Weekly Feature

OPT Research and Development Awards 2001

The Office of Power Technologies (OPT) held a research and development awards ceremony on December 13. Awards were given in three categories—Research Leadership, Young Investigators, and Research Partnerships. These awards were presented by the Assistant Secretary, David Garman and the Deputy Assistant Secretary for OPT, Robert Dixon.

Stephen Waslo, from DOE's Chicago Operations Office, was the recipient of the Research Leadership Award. The Research Leadership Award is given to Office of Power Technologies research managers

(Continued on page 3)

*The operations include the Honeywell Tensor and Honeywell Advanced Composites, Inc.**

(Continued from page 2)
for their outstanding accomplishments. Nominees must demonstrate sustained leadership and research management skills that advance the mission of the Office.

Stephen is a seasoned project manager with an M.S. in chemical engineering, twenty-two years of industrial experience, and fourteen years of government experience conducting and directing advanced technology R&D. Since the inception of the ATS program, Mr. Waslo has led the program implementation and provided sustained leadership as chair of the DOE industrial ATS program solicitation in 1992, as the project manager, and the Contracting Officer's Representative (COR) for the life of the ATS projects. Solar Turbines Incorporated partnered with DOE in 1992 and has designed, developed and demonstrated the Solar Turbines Mercury 50, a 4-Mwe gas turbine system that is the most efficient and environmentally responsible turbine in its class. Since 1997, the Mercury 50 project has received the Solar Turbine Company's President's Award, Caterpillar's Annual Quality Improvement Award, the Malcolm Baldridge National Quality Award, and the DOE Energy 100 Award. As recognized by Solar Turbines in receiving their business quality awards, Stephen's leadership brought a business quality and excellence focus to the project and helped keep the team on a path to success.

A related DER award went to the Ceramic Stationary Gas Turbine (CSGT) Development team in the Research Partnership category. The work, which focused on the nondestructive evaluation development for stationary gas turbine ceramic components, involved a list of participants including: Jeff Price and Mark van Roode, Solar Turbines Inc., Dennis Landini and Phillip Craig, Honeywell Advanced Ceramics, Inc., Roberta Hines, B.F. Goodrich, Inc., Harry Eaton and Gary Linsey, United Technologies Research Center, Peter Tortorelli and Karren More, Oak Ridge National Laboratory, and William Ellingson and Jiangang Sun, Argonne National Laboratory

The Ceramic Stationary Gas Turbine (CSGT) Development Team has worked together for nine years to successfully demonstrate improved performance of natural gas-fired electric power producing turbines through use of uncooled, advanced high-temperature continuous fiber-reinforced ceramic composite (CFCC) materials. The team members represented a wide range of specialized expertise that achieved significant milestones in bringing a technology from the laboratory to full commercial application. The advanced ceramic materials have been tested for over 33,000 hours in full sized industrial turbines and the results demonstrated emission characteristics better than any previous turbine tests. The successful demonstration of the use of these ceramic materials has demonstrated reduced fuel consumption, increased power and reduced emissions. The data generated in the CSGT program have made significant contributions to improving the performance to improving performance and emission signatures of future gas turbine products and their retrofit potential will also contribute to improving performance and lowering emissions of existing gas turbine installations.

Calendar of Events

JANUARY 2002			
10-11	Fundamentals of Energy Management	Dallas, TX	www.aeecenter.org/seminars
11-13	Managing the Risks of Retail Operation	Orlando, FL	www.infocastinc.com
14-15	Material Technologies for Fuel Cells and Power Electronics	Cocoa Beach, FL	www.ceramics.org/meetings/ECD2002/expo.asp
17-18	The Commercialization of Energy Technologies	New York, NY	www.cbinet.com/wconnect/wc.dll?CBEvent~GetMoreInfo~PB209
17-18	Annual Workshop on Microturbine Applications	College Park, MD	Sandra Maldonado maldonadosl@ornl.gov
22-23	DG Technology Seminar	Miami, FL	Lynn Miller, (618) 654-2341
28-Feb.1	Distributed Power Program Annual Review Meeting	Arlington, VA	kimberly_taylor@nrel.gov
29-Feb.1	Reducing Your Energy Costs Conference and Exhibit	New Orleans, LA	Stuart Steller, 781-939-2411, s.steller@cbinet.com

*The business assets include intellectual property and equipment used in Honeywell's Fuel Cell and Microturbine operations.**

Calendar of Events

FEBRUARY 2002			
27-Mar 1	DistribuTECH	Miami Beach, FL	www.pennwellevents.com
2	Distributed Resources, Renewables and the Environment	Portland, OR	newsdata@newsdata.com; 503-230-5884 (Bonneville Power Administration)
4-7	ICEPAG 2002	Newport Beach, CA	www.parcon.uci.edu/colloquium
6-7	Fuel Cell Dynamics: Reality, Not Hype	New York, NY	www.alliedworld.com
11-13	NASEO 2002 Energy Outlook Conference	Washington, DC	www.naseo.org/events/default.htm
20-21	Growing Green Power Demand	Denver, CO	www.xenergy.com/denver
20-22	New and Emerging Technologies Conference	Tucson, AZ	www.nreca.org/edu_events/conferences/newtech/html/conference.html
21-22	Mid-Atlantic Distributed Energy Resources Workshop	Philadelphia, PA	www.eren.doe.gov/pro/cal.html; to register: www.energetics.com/DERPhilly.html
Feb 25-March 1	Turbine Power Systems Conference and Condition Monitoring Workshop	Galveston, TX	www.netl.doe.gov
MARCH 2002			
7-8	Distributed Generation	South San Francisco, CA	www.aeecenter.org/seminars
11-13	6th Annual Distributed Generation & On-Site Power Conference	Atlanta, GA	www.dist-gen.com; 508-427-9470; gesi@mediaone.net
14-15	Fundamentals of Energy Management	Las Vegas, NV	www.aeecenter.org/seminars
12-14	Microturbine Program Review	Fairfax, VA	Debbie Haught 202-586-2211
17-21	EPRI's 7th Distributed Resources Conference and Expo	Dallas, TX	www.epri.com/programHigh.asp?program=238295&objid=266151
19-21	Electric Power 2002	St. Louis, MO	www.electricpowerexpo.com
20-23	Building Energy Conference	Medford, MA	www.nesea.org; 877-44SOLAR, ext. 20
22	Indiana/Caterpillar CHP Workshop	Indianapolis, IN	Ethan Rogers, (317) 232-8961
25-26	Fundamentals of Cogeneration & On-site Generation	Philadelphia, PA	www.aeecenter.org/seminars
27-28	GLOBALCON Energy/Facilities Management Conference & Expo	Philadelphia, PA	www.aeecenter.org/seminars
APRIL 2002			
3-4	The 2002 Hydrogen Investment Forum	Washington, DC	www.intertechusa.com

**Source: GE Power Systems Press Release, December 17*